



Medical School Hotline

Medical Technology at the John A. Burns School of Medicine

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Medical technologists are now commonly called clinical laboratory scientists (CLSs). They work with other laboratory professionals like phlebotomists, medical laboratory technicians, and pathologists to generate timely laboratory data for the diagnoses and treatment of illnesses and to maintain health.

A federal regulation (CLIA 88) requires that qualified individuals perform complex laboratory procedures when specimen manipulation or operation of sophisticated equipment is needed. CLSs run these complex procedures and ensure the accuracy of the output by statistically analyzing the results of quality control samples for equipment malfunctions and calibrating instruments for optimal operation.

Their education and experience enable CLSs to make critical decisions. Some examples are: a CLS in hematology maybe the first person to recognize abnormal blasts on a blood smear or anemia or thrombocytopenia on a CBC printout that may indicate an onset of acute leukemia. When type-specific blood units become unavailable for transfusion, a CLS in blood bank can suggest alternative compatible units to avoid life-threatening transfusion reactions. A CLS in microbiology is keenly aware of the trend in antimicrobial resistance of pathogens, thus he/she is able to select the most effective agents against infections. A CLS performing a pediatric urinalysis may note discrepancies in results of glucose/sugar tests that prompt an investigation for possible galactosemia.

The Medical Technology program at the University of Hawaii at Manoa (UHM) began in the 1930s to meet the need for baccalaureate-level laboratory professionals in the community hospitals. Dr. Eric Fennel (Straub Clinic) is generally credited as a primary force behind the establishment of this program. The first bachelor's degree in Medical Technology was awarded in 1946. Currently, the program is accredited by the National Accreditation Agency for Clinical Laboratory Sciences.

The Division of Medical Technology is based in the Department of Allied Medical Sciences in the John A. Burns School of Medicine (JABSOM). Few faculty members are full-time on campus but there are many part-time lecturers and clinical instructors. They provide a wide range of expertise to help students succeed in this diverse field. Some also serve as resource and PBL tutors in the JABSOM MD Training Program by providing medical students with up-to-date information.

Students who complete the pre-requisite courses apply to be admitted to the Medical Technology program in their junior year. The undergraduate curriculum includes the major disciplines in

CLS (e.g., hematology, microbiology, clinical chemistry, immunohematology, immunology) and meets the UHM core requirements for a Bachelor of Science degree. Over 97% of students graduate within two years of admission. Students have sufficient coursework for a minor in Microbiology. Required courses that include biology, organic chemistry, biochemistry, physics, calculus, and physiology also help students prepare for medical schools or graduate schools.

Students are assigned to clinical rotations during the summer months following the junior year and after graduation at affiliated laboratories on Oahu and the neighbor islands. Without the cooperation of these laboratories, students do not master the professional skills to become certified CLSs. Some of the laboratories where students have gained valuable professional skills in recent years include the Diagnostic Laboratory Services, Clinical Laboratories of Hawaii, Kuakini Medical Center, Tripler Army Medical Center, Kaiser Permanente Medical Center, Castle Medical Center, and Tri City Medical Center in Oceanside, California.

After the post-graduate clinical training, students are eligible to challenge a national certification exam to become CLSs. The average scores of UHM graduates have always been above the national mean and almost everyone has passed the exam on his/her first attempt. In Hawaii, the national certification is required for licensure as a technologist. Employment rate of graduates is nearly 100%.

Most of the students are local, from all islands of the State. Some are family members of the military stationed in Hawaii. Students also come from the mainland US, Pacific islands, Asia, and distant places like Africa. An articulation agreement waives several courses for graduates from the Kapiolani Community College Medical Laboratory Technician program when they matriculate to the UHM program so that they can achieve career advancement.

The education and experience gained through the Medical Technology curriculum are valuable in achieving higher career goals. Among the graduates are successful laboratory information system specialists, quality assurance coordinators, point-of-care testing coordinators, laboratory and hospital administrators, forensic scientists, laboratory consultants, cytotechnologists, educators, physicians, researchers, and vendors of laboratory supplies all over the world.

The Division's vision is to be the top academic and technological center of CLS in the world with a focus on Asian/Pacific issues. A challenge that faces the Division today is to help students keep pace with the growing technology and be able to utilize the knowledge to help patients. Robotics has appeared in a few large laboratories to automate phases of testing from specimen preparation and analysis to data transmission. Automation increases the productivity while reducing exposure of laboratory staff to biologically hazardous conditions. Nonetheless, well-educated CLSs are needed to maintain optimal operation of equipment and to determine the clinical significance of data.

Medical technology is an important health profession with a potential for career advancement. Qualified CLSs are in demand nationwide. Students in high schools and colleges are sought to become CLSs. Visit the web site for more about the Division at UHM and the profession at <http://www.hawaii.edu/medtech/Medtech.html>.